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The Course of Adjustment Disorder following Involuntary Job Loss and its Predictors of Latent Change

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Abstract

Adjustment disorders (AjD) usually resolve after the precipitating life event and its consequences are terminated. However, they bear the risk for the development of severe mental illness. The present study investigates the natural course of AjD as defined for ICD-11. N=303 individuals who involuntarily lost their jobs were assessed initially after the job loss and 6 months later. Latent class latent change analysis and multinomial logistic regression were performed. Two groups showed low (n=149, 49.2%) and medium (n=108, 35.6%) symptom severity at initial assessment that declined over time. The third group (n=46, 15.2%) showed a high initial response and a small of worsening of symptoms. Gender, age, first dismissal, impaired social functioning, dysfunctional disclosure, social support, and social acknowledgement were associated with belonging to the latter group. It might be beneficial to target individuals at high risk with interventions that aim at the improvement of skills relevant for stress management.

Keywords: Adjustment Disorder; ICD-11; Job loss; latent change; growth mixture model; multinomial regression

The Course of Adjustment Disorder following Involuntary Job Loss and its Predictors of Latent Change

Adjustment disorder (AjD) is used to describe emotional and behavioral symptoms that can develop in reaction to psychosocial stressors, such as critical life events (American Psychiatric Association, 2013; World Health Organization, 1992). The recently proposed description for the International Classification of Diseases, 11th version (ICD-11) includes (a) the presence of a stressor, (b) preoccupation with the stressor and failure to adapt as core symptoms and (c) requires functional impairment for a diagnosis of AjD (Maercker et al., 2013). This proposal represents a major shift in the definition of the disorder as previous criteria defined AjD entirely through the exclusion of other mental disorders (American Psychiatric Association, 2013; World Health Organization, 1992). Due to its subordinate status in current classification systems, the AjD diagnosis received little research attention (e.g., Baumeister & Kufner, 2009).

AjD lies on the spectrum between normal adjustment and severe psychopathology, and has the potential for either spontaneous remission or for the development of major psychiatric disorders over time (Casey & Doherty, 2012). In the diagnostic guidelines, it is assumed that the symptoms usually resolve within six months after the event or its consequences are terminated (American Psychiatric Association, 2013; World Health Organization, 1992). However, thus far no studies have investigated the natural course of AjD as defined in ICD-11. Some conclusions can be drawn from a randomized controlled trial investigating the efficacy of a self-help intervention, in which the wait-list control group showed a decline in AjD symptoms of medium effect size over a period of four weeks (*d*=0.52; Bachem & Maercker, 2016b). In a recent study using DSM-5 criteria, O'Donnell et al. (2016) found that the diagnosis of AjD three months after a serious injury increased the risk for twelve months diagnosis of AjD (odds ratio = 5.45) or any psychiatric disorder (odds ratio = 2.67). Over half

of the participants with AjD at three months (55.8%) met the criteria for a psychiatric disorder at twelve months (O'Donnell et al., 2016).

Some research using previous criteria with regard to the course of AjD stems from clinical samples. Readmission rates for patients with AjD seem to be relatively low in general (5 years: 19.8%; Jäger, Burger, Becker, & Frasch, 2012) and when compared to affective disorders (1 year: 6.9% vs. 13.7%; Jones, Yates, & Zhou, 2002). However, when readmitted, 50% of the patients were re-hospitalized with a more severe disorder (Jäger et al., 2012). These results reflect the nature of AjD as being a transitory mental disorder. The symptoms generally show a positive course but at the same time, the risk for severe mental health impairments is increased. In light of the new concept of AjD for ICD-11, there is a need to investigate the course of AjD symptoms and related characteristics.

For ICD-11 and DSM-5, the AjD definition has been integrated in the context of stress-response syndromes (American Psychiatric Association, 2013; Horowitz, 2001; Maercker et al., 2013). One framework that can facilitate the identification of associated characteristics of stress-response syndromes is the socio-interpersonal perspective by Maercker and Horn (2012). The model advocates that we should broaden the perspective from traditional, intra-individual focused variables to interpersonal processes in the development and maintenance of stress-response syndromes. It defines the three layers of social-affective reactions, interaction in close relationships, and distant social contexts such as societal and cultural dimensions as relevant for the course of stress-response disorders (Maercker & Horn, 2012).

A well-researched process that would be allocated on the second layer of the socio-interpersonal framework model is social support. A lack of social support is among the strongest predictors of PTSD (Brewin, Andrews, & Valentine, 2000; Ozer, Best, Lipsey, & Weiss, 2003), and it was associated with better mental health after serious life events in several studies (Maercker, Hilpert, & Burri, 2016; Prati & Pietrantoni, 2010; Rizalar et al., 2014). Social acknowledgement as a survivor is a variable that has received increasing

attention as a societal factor associated with stress-response. It reflects positive reactions from society that acknowledge the difficulty of a stressful life situation. The lack of social acknowledgement was associated with higher AjD symptoms in old age (Fankhauser et al., 2010), higher symptoms of secondary traumatization (Krutolewitsch, Horn, & Maercker, 2016), and a decrease of depressive symptoms over time (Maercker et al., 2016). Dysfunctional disclosure can be allocated between the first and second layer of the socio-interpersonal model as it reflects the individuals urge and reluctance to talk to other individuals about the event as well as the emotional reactions while disclosing (Mueller, Beauducel, Raschka, & Maercker, 2000). High dysfunctional disclosure was associated with several stress outcomes, such as higher AjD symptoms (Fankhauser et al., 2010; Mueller, Forstmeier, Wagner, & Maercker, 2011), higher symptoms of secondary traumatization (Krutolewitsch et al., 2016), and decreased life satisfaction (Maercker et al., 2016).

However, the socio-interpersonal model does not neglect the contribution of intra-individual processes in stress management. Two processes that are highly relevant for the adaptation after life stress are self-efficacy and sense of coherence. High self-efficacy, as the subjective believe to master difficult situations, was predictive for less PTSD symptoms in various settings (Bosmans & van der Velden, 2015; Heinrichs et al., 2005; Warner, Gutiérrez-doña, Angulo, Villegas Angulo, & Schwarzer, 2015) and for more personal growth after surgery (Luszczynska, Mohamed, & Schwarzer, 2005), and it was negatively associated with AjD symptoms in old age (Fankhauser et al., 2010). Sense of coherence is an indicator of resilience or health maintenance after stressful situations and reflects the ability to integrate difficult situations by perceiving life phenomena as connected and by balancing positive and negative appraisals of experiences (Bachem & Maercker, 2016a). Its revised concept was found to be negatively associated with grief, depression, anxiety, and chronic stress and positively associated with general mental health and satisfaction with life (Bachem & Maercker, 2016a; Mc Gee, Hoeltge, Maercker, & Thoma, 2017).

The present study was conducted with two primary aims: (1) to examine the change of AjD symptom severity over a period of six months and (2) to identify predictors of change in a high-risk sample of individuals who lost their job involuntarily. There was insufficient empirical evidence to formulate specific hypothesis. Previous studies identified varying degrees of initial symptom severity (Bley, Einsle, Maercker, Weidner, & Jorarschky, 2008; Glaesmer, Romppel, Brähler, Hinz, & Maercker, 2015) and discussed different possible trajectories of symptom progression (Casey & Doherty, 2012; O'Donnell et al., 2016). We therefore expected that we would find subgroups of individuals, who differed in initial symptom severity and in change of symptom severity over time. Moreover, we wanted to examine whether demographic and psychological variables were differentially associated with the different change patterns. Based on assumptions of the socio-interpersonal framework model (Maercker & Horn, 2012) and previous studies, we expected that we would be able to identify different interpersonal and intrapersonal predictors of change.

Method

Participants and Procedure

The current analysis is part of the Zurich Adjustment Disorder Study, a longitudinal study cross-validating the proposed AjD diagnosis for ICD-11 and DSM-5. The Ethics Committee of the University of Zurich approved the study in June 2015. We recruited participants in the greater Zurich area mostly through the local employment offices, but also through newspaper articles, and mailing lists. Inclusion criteria were being laid off within 9 months prior to participation, and being aged over 18 years. Participants were excluded if they did not speak German fluently, were unable to give written informed consent, or suffered from a severe mental illness. Participants eligible for participation were invited to two assessments, the first one (t1) up to nine months after the job loss and the second one (t2) six months later. The assessment consisted of a fully structured clinical diagnostic interview with an adapted version of the Munich Composite International Diagnostic Interview (M-CIDI;

Wittchen & Pfister, 1997) that was complemented by several questionnaires. Research assistants who were trained in the M-CIDI conducted the interviews either at the University or at the participants' home. A total of 334 participants could be included in t1, 31 (9.28%) of which dropped out at t2. The main reason for dropout was that participants could not be reached again (22) or actively withdrew their participation because of time or health issues (9). This led to a final sample size of *N*=303 participants.

An overview over demographic characteristics is given in Table 1. Gender was evenly distributed across the sample (female: *n*=148, 48.8%; male: *n*=155, 51.2%). For *n*=116 (38.3%) participants it was the first job loss (female: *n*=65, 45.5%; male: *n*=51, 43.0%; $\chi^2(1)=4.016$, *p*=.045). There were no statistically significant gender differences in age (*t*(301)=1.742, *p*=.083) and duration of unemployment at t2 (*t*(294)=0.453, p=.811). The reemployment rate at t2 was 45.9% (*n*= 139) and did not differ by gender (female: *n*=68, 46.6%; male: *n*=71, 46.1%; $\chi^2(1)=0.007$, *ns*). The interval between measurement occasions was longer for women than for men (*t*(299)=-2.926, *p*=.004). The correlation between age and the interval between assessments was significant (*r*=-.13, *p*=.022).

Measures

The *Adjustment Disorder – New Module 20* (ADNM-20; Einsle, Köllner, Dannemann, & Maercker, 2010) was used to measure AjD symptom severity at both time points. The self-report questionnaire captures previous life events and evaluates AjD symptoms in response to the most straining event (Einsle et al., 2010). We used a contextualized version of the ADNM-20 that only measured AjD symptoms in response to the job loss. The items reflect symptoms of preoccupation, failure to adapt, avoidance, affective reaction, and impulsivity. The response format of the 20 items is a 4-point Likert scale (1, '*never*' – 4, '*often*') and a sum score can be calculated to evaluate overall symptom severity (Einsle et al., 2010). Satisfactory psychometric properties regarding factor structure, internal consistency, retest-reliability, and construct validity was found in previous studies (Bley et al., 2008; Einsle et

al., 2010; Glaesmer et al., 2015). The internal consistencies in the present study were α_{t1} = .93 and α_{t2} = .94.

The *Social Functioning Questionnaire* (SFQ; Tyrer, 2005) assessed perceived social function at t1. The eight items cover different areas of function, such as work and home tasks, financial concerns, relationships, spare time activities, and sexual activities. The response format is a 4-point Likert scale, ranging from 0 (*'most of the time* (5 items) / *no problems at all* (3 items)*'*) to 3 (*'not at all* (5 items) / *severe problems* (3 items)*'*). The English version was translated in a translation – back translation process into German. A higher sum score on the SFQ indicates higher impairment in social functioning. Retest-validity and concurrent validity were satisfactory in earlier studies (Seivewright, Tyrer, & Johnson, 2004; Tyrer, 2005). The internal consistency in the present study was α_{t1} = .76.

The *Disclosure of Trauma Questionnaire* (DTQ; Mueller & Maercker, 2006) was used in an abbreviated form (Pielmaier & Maercker, 2011) to measure a dysfunctional disclosure style at t1. The urge to talk, reluctance to talk, and emotional reactions while disclosing are measured with 12 items on a 6-point Likert scale (0, *'not at all'* – 5, *'absolutely'*). The total score is obtained by summing up all individual items and higher scores are indicative for a more dysfunctional disclosure style. The scale showed satisfactory internal consistency before (Mueller et al., 2000). The internal consistency in the present study was α_{t1} = .80.

The *Social Support Questionnaire, short form – German* (FSozU-K; Fydrich, Sommer, Tydecks, & Brähler, 2009) assessed perceived social support at t1. The 14 items are answered on a 5-point Likert scale (1, *'don't agree'*–5, *'agree'*) and the total score is built by the mean of all items that are answered by the participant to avoid problems with missing data (Fydrich et al., 2009). In the initial validation, the FSozU-K showed satisfying psychometric properties with regard to reliability and construct validity (Fydrich et al., 2009). The internal consistency in the present study was α_{t1} = .92.

The *Social Acknowledgement Questionnaire* (SAQ; Maercker & Mueller, 2004) was used to assess the perceived acknowledgement of the difficult situation of the participant by the social surrounding. The SAQ was administered at t2 to account for the temporal component of the construct and to capture the acknowledgement during unemployment. The 16 items of the questionnaire measure general disapproval, disapproval by family or friends, and recognition as a victim. We used a contextualized version, in which every item referred to the job loss. The response format is a 4-point Likert scale ranging from 0 (*'not at all'*) to 3 (*'completely'*). The total score is built by summing up items 3, 9, and 11–16 and distracting items 1,2, 4–8 , and 10. A higher score is indicative for more acknowledgement. The reliability and validity of the scale in the initial validation study were satisfactory (Maercker & Mueller, 2004). The internal consistency in the present study was $\alpha_{t2} = .72$.

The *General Self-Efficacy Scale* (GSE; Schwarzer & Jerusalem, 1999) consists of 10 items and was used to measure general self-efficacy. The response format is a 4-point Likert scale ranging from 1 (*'not correct'*) to 4 (*'absolutely correct'*). The total score is built by summing up all individual items. The GSE showed high internal consistencies and satisfactory construct validity in earlier studies (Hinz, Schumacher, Albani, Schmid, & Brähler, 2006; Schwarzer & Jerusalem, 1999). The internal consistency in the present study was $\alpha_{t1} = .90$.

The *Sense of Coherence Scale – revised* (SOC-R; Bachem & Maercker, 2016a) was used to measure sense of coherence. The facets manageability, reflection, and balance are measured by 13 items on a 5-point Likert scale (1, *'not at all'* – 5, *'completely'*). The total score is obtained by summing up all variables and higher scores are indicative of a stronger sense of coherence. Factorial validity, reliability, and construct validity were satisfactory in earlier validation studies (Bachem & Maercker, 2016a; Mc Gee et al., 2017). The internal consistency in the present study was $\alpha_{t1} = .68$.

Data Analysis

The analysis for this study included four parts. First, we identified varying change trajectories in the ADNM-20 sum score within a latent growth mixture modelling (LGMM) framework (Muthén & Muthén, 2000). Latent growth modelling estimates growth trajectories comprised of an intercept (baseline level) and a slope (change). LGMM extends this approach by allowing differences in growth parameters across unobserved subpopulations (classes). For each latent class, separate growth models and unique estimates of variances are modelled (Jung & Wickrama, 2008). Thus, using the LGMM framework allowed us to test whether change in AjD symptom severity is best characterized by one or more distinct growth curves. We performed a latent class growth analysis (LCGA) following Jung & Wickrama (2008). LCGA is a specific method of latent growth modelling, in which all individual growth trajectories within a class are homogenous by fixing the variance and covariance estimates for the growth factors to zero (Nagin & Land, 1993). It is to mention here, that traditionally at least three measurements are needed in order to identify a latent growth curve; however, we only had two measurements available. Therefore, we specified a latent class latent change model instead of a latent class growth model.

We estimated five models (a 2-class through to a 6-class model) using robust maximum likelihood estimation (Yuan & Bentler, 2000), with 500 random sets of starting values, and 50 final stage optimizations. The relative fit of the resulting models was compared by the Akaike Information Criterion (AIC; Akaike, 1987), the Bayesian Information Criterion (BIC; Schwartz, 1978), the sample size adjusted BIC (ssaBIC; Sclove, 1987), and the Lo-Mendell-Rubin adjusted likelihood ratio test (LMRA-LRT; Lo, Mendell, & Rubin, 2001). For the AIC, BIC, and ssaBIC the model that produces the lowest value can be judged as best model. For the LMRA-LRT a non-significant p-value indicates that the model with one less class should be accepted.

Second, we assigned participants to groups according to their most likely class membership. Third, we used single factor analysis of variance (ANOVA) and χ^2-testing to identify univariate differences between groups. ANOVA was used for the continuous outcomes and group membership was entered as the factor. χ^2-tests were used with the categorical outcomes. Fourth, we applied multinomial regression analysis to identify correlates that were associated with group membership on a multivariate level. We entered variables that showed effects in the univariate analysis.

We used MPlus, version 8 (Muthén & Muthén, 2017) and IBM SPSS Statistics, version 23 for data analysis. All values were z-standardized prior to inclusion in the latent class latent change model and the multinomial regression.

Results

Descriptives

For the time between the job loss and t2, the job loss was the only event for 12.2% (*n*= 37) of the participants, 22.1% (*n*= 67) reported having experienced one further life event, 22.8% (n= 69) reported two further life events, and 42.9% (*n*=130) experienced three or more other life events between the job loss and the second assessment. The most prevalent life events besides the job loss were illness or death of a loved one (47.9%, *n*= 145), financial problems (34.3%, *n*= 104), family conflicts (34.3%, *n*= 104), conflicts with public authorities (20.1%, *n*= 61), and moving to a new home (19.8%, *n*= 60).

Table 1 provides an overview of the descriptive statistics of the main measures of the study. The decline in AjD symptom severity between t1 and t2 was significant ($t(268)=6.271$, $p=.000$, $d=0.35$). There were gender differences in adjustment disorder symptom severity at t1 ($t(285)=-3.027$, $p=.003$) and at t2 ($t(283)=$, $p=.004$), in impairment in social functioning ($t(292)=-2.530$, $p=.012$), and in dysfunctional disclosure ($t(293)=-2.794$, $p=.006$). The differences in perceived social support ($t(301)=0.220$, $p=.826$), social acknowledgement

(t(275)=-1.281, p=.201), general self-efficacy (t(297)=1.734, p=.084), and sense of coherence (t(291)=1.005, p=.316) were not significant. Age and AjD symptom severity at t1 correlated significantly (r=.14, p=.017).

TABLE 1 AROUND HERE

Latent class latent change model

Table 2 displays the fit statistics for the latent class latent change model. The AIC and ssaBIC were smallest for a solution with six classes. The BIC was smallest for a solution with 3 classes and the LMRA-LRT was non-significant for the 4-class model, suggesting the superiority of the 3-class model. Based on the results of the BIC and the LMRA-LRT, and with consideration to issues of model interpretability and parsimony, the 3-class solution was considered the best fitting solution. Figure 1 displays the transition from t1 to t2 for each class.

FIGURE 1 AROUND HERE

TABLE 2 AROUND HERE

Participants were then assigned to groups based on their most likely class membership. The first group (*low*; n=149, 49.2%) was characterized by relatively low mean AjD symptom severity at t1 (M=33.0, SD=8.5) and at t2 (M=27.6, SD=5.0; t(135)=7.005, p=.000, d=0.77), whereas the second group (*medium*; n=108, 35.6%) was characterized by medium mean AjD symptom severity at t1 (M=46.9, SD=7.9) and at t2 (M=42.5, SD=5.4; t(94)=4.273, p=.000, d=0.65), and the third group (*high*; n=46, 15.2%) was characterized by relatively high mean AjD symptom severity at t1 (M=57.3, SD=9.5) and at t2 (M=60.1, SD=5.8; t(37)=-1.506, p=.141, d=-0.36). Interestingly, the low and medium group showed a significant decline in symptoms while the high group remained stable with a trend to deterioration of symptoms.

ANOVA and χ^2-test

The differences between groups in key demographic, job-related and psychological characteristics can be found in Table 3. In univariate analysis, the groups differed significantly in gender, impairment in social functioning, dysfunctional disclosure, perceived social support, social acknowledgement, self-efficacy, and sense of coherence. The differences in age and reemployment status at t2 were marginally significant.

TABLE 3 AROUND HERE

Multinomial Regression

We entered all variables that were significant in the univariate analysis into a multinomial regression analysis. We also included first job loss because we observed large group differences on a descriptive level and expected to find effects. Table 4 reports the adjusted odds ratios from the multinomial regression. The model was statistically significant ($\chi^2(470)=744.44$, $p<.001$). Impairment in social functioning, dysfunctional disclosure, social acknowledgement, and sense of coherence remained significant predictors of belonging to the medium group (as compared to low). Female gender, older age, first job loss, impairment in social functioning, dysfunctional disclosure, and social acknowledgement remained significant predictors of belonging to the high group (as compared to low). Gender, age, first job loss, impairment in social functioning, and perceived social support were significant predictors of group membership in the high to medium group comparison.

TABLE 4 AROUND HERE

Discussion

The aim of the present study was to examine the course of AjD symptom severity over time and to identify characteristics that were associated with change. Three groups with differing latent change patterns, reflecting low symptom severity, medium symptom severity, and high symptom severity, were identified. Over the course of six months, the low and the medium symptom group showed a decline of symptomatology of medium effect size. Most interestingly, 15% of the individuals reported very high symptoms in response to the job loss at the first assessment and a small increase of symptoms at the six months follow-up. Female gender and higher age were associated with belonging to the latter group. Furthermore, the vast majority of participants experienced further life stressors, such as problems in the family or financial difficulties, after the job loss, highlighting the manifold implications of job loss for other important areas of life. It could be advisable to target specific groups that are at high risk of more severe symptomatology and unfavorable course of symptoms, such as females and older individuals, with selective prevention strategies.

In accordance with the socio-interpersonal perspective proposed for stress-response syndromes (Maercker & Horn, 2012), several psychological processes were associated with group membership. In line with earlier findings, higher dysfunctional disclosure was associated with worse outcome whereas higher perceived social support, higher social acknowledgement, and higher sense of coherence were associated with lower symptom severity and better prognosis (cf. Fankhauser et al., 2010; Maercker et al., 2016; Mc Gee et al., 2017). Regarding interventions training the social-interpersonal abilities e.g., training of communication skills to increase cognitive processing of the event and to decrease preoccupation (e.g., Pennebaker, 1995) or activating social support resources to buffer the negative effects of the job loss (e.g., Cohen & McKay, 1984), could increase chances of symptom improvement.

Distinguishing clinical relevant symptoms from a normal stress-response is one of the recurring issues with regard to AjD (Casey & Doherty, 2012; Keeley et al., 2016). Besides defining specific symptoms, ICD-11 will most likely incorporate a criterion of significant impairment in their diagnostic guidelines (cf. Maercker et al., 2013) as an attempt to differentiate disorder from non-disorder. In the present study, impairment in social functioning at t1 was the only predictor associated with group membership in each comparison. Individuals who reported higher impairment were more likely to belong to the medium or high group. These results indicate that impairment in social functioning is associated with worse outcome. The degree of symptom severity and the degree of impairment in social functioning seem to increase in parallel, so one could argue that impairment in social functioning provides redundant information. However, several studies supported the unidimensionality of the currently investigated AjD symptoms, indicating that there could be a more parsimonious solution to describe AjD accurately (e.g., Glaesmer et al., 2015; Lorenz, Hyland, Perkonigg, & Maercker, 2017). Furthermore, there is evidence for the validity of preoccupation with the stressor and failure to adapt as two separate core symptoms (Kazlauskas et al., 2017; Lorenz et al., 2017; Zelviene et al., 2017). If the degree of functional impairment is a strong indicator for the degree of AjD symptomatology, a description of the disorder that focuses on the core symptoms and functional impairment might be the most efficient solution. The present findings suggest that impairment in social functioning might be a strong indicator for initial symptom severity and course of symptoms, and further research should focus on its relationship with the core AjD symptomatology.

The ICD-11 description includes that the symptoms of an AjD typically resolve within six months, unless the stressor persists for a longer duration. In the present study, we included individuals up to nine months after their job loss in the first assessment based on the assumption that the effects of job loss do not end with the last day of work. The six months interval between measurements was chosen to investigate whether AjD symptoms in fact

typically resolve within six months. We found that at the second assessment, i.e. up to fifteen month after the job loss, a significant proportion still reported medium or high symptom severity, questioning the validity of the six months time frame. We did not investigate diagnostic status of AjD and we did not control for the presence of other psychiatric disorders that would exclude AjD as a diagnosis, thus further studies should include this focus in their designs. Furthermore, reemployment was not predictive for group membership, suggesting that the end of the stressor and its consequences, i.e. not being unemployed anymore, did not have a significant impact on symptom development. As literature on the course of AjD is limited, future research should investigate fluctuations in symptomatology, e.g., with designs that repeatedly measure AjD at different time points after the occurrence of a stressor.

Several aspects of the study limit the generalizability of the findings. First, the data in the present analysis stem from a very specific sample. Losing employment in Switzerland, a country with a high socio-economic status, is most likely different from unemployment under other conditions. The high social security in Switzerland leads in most cases to a less existential financial threat, which allowed us to focus on psychological processes in the adjustment process. Second, unemployment as the only precipitating event for AjD symptoms in the present study limits generalizability to other contexts, in which AjD can occur. However, the advantage of this sample was the expected high stress response as job loss has a multitude of implications for everyday life. Third, the data has been collected using a self-report assessment that could result in both aggravation and understatement of symptoms. Other means of assessment and sources of information could help to depict a more generalizable picture of the disorder. Fourth, we did not collect data about interventions or treatment that the participants received after the job loss. The content and quality of the mandatory counselling in the employment offices or any psychological treatment that the individuals received could have had an effect on the course of symptoms that we could not account for. Finally, the design of the study did not allow us to collect pre job loss data, which

would have been helpful to identify risk factors that are of relevance before a critical life event. Future studies should investigate various stressors, use different means of assessment and might incorporate a prospective design to corroborate present findings.

This is the first study to investigate the natural course of AjD symptoms according to the new ICD-11 concept. Individuals differed in their initial response to the job loss by different levels of symptom severity and their course of symptoms over a period of six months. Dysfunctional disclosure, social support, social acknowledgement, and sense of coherence were differentially associated with group membership. The stress-response conceptualization and the socio-interpersonal framework were valuable to identify characteristics that were associated with change. Our results imply that specific selective prevention that targets individuals at high risk might be a useful intervention strategy after involuntary job loss.

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Authorship Statement

AM and AP developed the study concept. All authors contributed to the study design. Data collection was managed by LL and supported by AP and AM. LL performed the data analysis and interpretation under the supervision of AM. LL drafted the paper, and AM and AP provided comments. All authors approved the final version of the paper for submission.

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Table 1

Demographic information and descriptive statistics of the main measures for the whole sample and divided by gender

	Full sample (N = 303)		Male (n = 155)		Female (n = 148)		Gender Effect
	M	*SD*	*M*	*SD*	*M*	*SD*	*d*
Age (years)	44.0	10.8	45.1	10.4	42.9	11.0	0.21
Interval between measurements (months)	6.2	0.6	6.1	0.5	6.3	0.7	-0.33
Duration of unemployment at t2 (months)	7.0	3.3	7.1	3.4	6.9	3.2	0.06
AjD (t1)	41.9	12.6	39.8	11.8	44.2	13.0	-0.35
AjD (t2)	37.5	12.6	35.4	11.1	39.7	13.6	-0.35
Impairment in social functioning	6.2	4.0	5.6	3.8	6.8	4.1	-0.30
Dysfunctional disclosure	14.8	8.9	13.4	8.1	16.2	9.4	-0.32
Perceived social support	4.3	0.7	4.3	0.6	4.2	0.8	0.14
Social acknowledgement	2.7	6.6	2.2	6.4	3.2	6.9	-0.15
General self-efficacy	31.0	5.0	31.5	4.7	30.5	5.3	0.20
Sense of coherence	51.1	5.7	51.5	5.7	50.8	5.6	0.12

Table 2

Fit statistics for latent class latent change model

Classes	Loglikelihood	AIC	BIC	ssaBIC	Entropy	LMRA-LRT (p)
2	-730.35	1474.70	1500.69	1478.49	.743	142.15 (.000)
3	**-703.46**	**1426.93**	**1464.06**	**1432.35**	**.764**	**50.80 (.001)**
4	-696.54	1419.07	1467.35	1426.12	.763	13.09 (.112)
5	-690.25	1412.50	1471.92	1421.18	.728	11.88 (.065)
6	-681.25	1400.51	1471.07	1410.81	.769	17.00 (.091)

Note. AIC = Akaike information criterion; BIC = Bayesian information criterion; ssaBIC= sample-size adjusted BIC; LMRA-LRT= Lo-Mendell-Rubin adjusted likelihood ratio test; BSLRT = Bootstrapped LRT. Selected class solution in bold.

Table 3

Demographic, job-related, and psychological characteristics divided by group membership

	Symptom Level			
	Low (n = 149, 49.2%)	Medium (n = 108, 35.6%)	High (n = 46, 15.2%)	p
Demographic				
Gender				
Male (%)	59.1	50.0	28.3	.001
Female (%)	40.9	50.0	71.7	
Age (*M (SD)*)	43.2 (11.3)	43.6 (10.3)	47.4 (9.5)	.059
Job-related				
First job loss (%)	36.9	37.0	45.7	.485
Reemployment t2 (%)	52.3	38.9	41.3	.054
Unemployment duration (*M (SD)*)	6.8 (3.2)	7.0 (3.3)	7.6 (3.6)	.363
Psychological				
Impairment in social functioning (*M (SD)*)	4.3 (3.2)	7.0 (3.1)	10.4 (4.2)	.000
Dysfunctional disclosure (*M (SD)*)	10.2 (7.2)	17.9 (7.5)	22.4 (8.5)	.000
Perceived social support (*M (SD)*)	4.5 (0.5)	4.2 (0.7)	3.8 (0.9)	.000
Social acknowledgement (*M (SD)*)	4.7 (5.8)	2.1 (5.8)	-2.1 (8.2)	.000
Self-efficacy (*M (SD)*)	32.6 (3.9)	29.8 (5.2)	28.8 (6.0)	.000
Sense of coherence (*M (SD)*)	52.8 (4.9)	49.00 (6.1)	50.7 (5.60)	.000

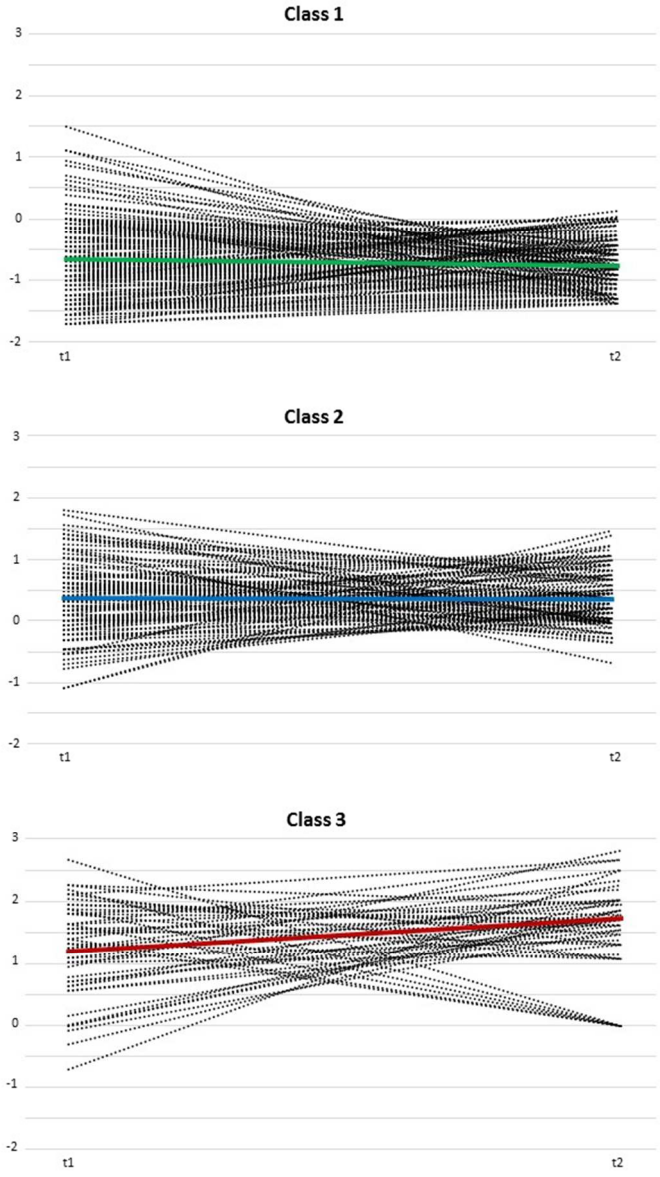
Note. p = statistical significance value. Single factor analysis of variance with group membership as factor was performed for continuous measures. χ^2-test was performed for categorical measures.

Table 4

Results from the multinomial regression for predictors of group membership

	Medium vs. low symptom level					High vs. low symptom level					High vs. medium symptom level				
Predictors	*b*	*SD*	*p*	*OR*	95% CI	*b*	*SD*	*p*	*OR*	95% CI	*b*	*SD*	*p*	*OR*	95% CI
Gender	-0.28	0.36	.441	0.76	0.37;1.54	-1.67	0.57	**.004**	**0.19**	**0.06;0.58**	-1.39	0.53	**.009**	**0.25**	**0.09;0.70**
Age	0.03	0.18	.860	1.03	0.72;1.48	0.70	0.29	**.014**	**2.01**	**1.15;3.51**	0.67	0.27	**.013**	**1.94**	**1.15;3.28**
First job loss	-1.28	0.37	.931	0.97	0.47;2.01	-1.28	0.57	**.025**	**0.28**	**0.09;0.85**	-1.24	0.52	**.017**	**0.29**	**0.10;0.80**
Reemployment	-0.47	0.39	.221	1.60	0.75;3.41	-0.47	0.57	.413	0.63	0.21;1.91	-0.94	0.52	.074	0.39	0.14;1.09
Impairment in social functioning	0.57	0.26	**.029**	**1.76**	**1.06;2.93**	1.38	0.37	**.000**	**3.96**	**1.91;8.21**	0.81	0.32	**.012**	**2.25**	**1.20;4.21**
Dysfunctional disclosure	1.21	0.23	**.000**	**3.35**	**2.14;5.25**	1.39	0.33	**.000**	**4.01**	**2.10;7.64**	0.18	0.29	.531	1.20	0.68;2.10
Perceived social support	0.12	0.26	.652	1.12	0.68;1.86	-0.45	0.32	.156	0.64	0.34;1.19	-0.57	0.27	**.038**	**0.57**	**0.33;0.97**
Social acknowledgement	-0.52	0.24	**.028**	**0.60**	**0.37;0.95**	-0.88	0.33	**.009**	**0.42**	**0.22;0.80**	-0.36	0.29	.222	0.70	0.39;1.24
Self-efficacy	0.19	0.25	.456	1.20	0.74;1.96	0.48	0.34	.153	1.61	0.84;3.11	0.29	0.27	.286	1.34	0.78;2.30
Sense of coherence	-0.79	0.24	**.001**	**0.46**	**0.28;0.73**	-0.23	0.35	.510	0.80	0.40;1.57	0.56	0.31	.074	1.75	0.95;3.21

Note. All predictor variables measured at t1, except reemployment (refers to the time between t1 and t2). *b* = regression weight; *SD* = standard deviance; *p* = statistical significance value; *OR* = Odds Ratio; 95% CI = 95% confidence interval; significant effects in bold.



Estimated means and observed individual values (z-scores) for the 3-class solution of the latent class latent change model, seperated by class.

200x279mm (96 x 96 DPI)